

Green Streets Sligo Estates / Ballantrae / McDonald Knolls

Environmentally Friendly Landscapes
for Healthy Watersheds



Concept Design Presentation
November 18, 2015



DEPARTMENT OF
**ENVIRONMENTAL
PROTECTION**
MONTGOMERY COUNTY • MARYLAND

www.montgomerycountymd.gov/watershedrestoration



Introductions

- Ryan Gardiner
 - DEP Project Manager (Consultant)
- Jason Alwine
 - Project Manager, Gannett Fleming
- Matt Abel
 - iDesign
- Paul Bogle
 - DEP Senior Engineer
- Don Dorsey
 - DEP Watershed Planner

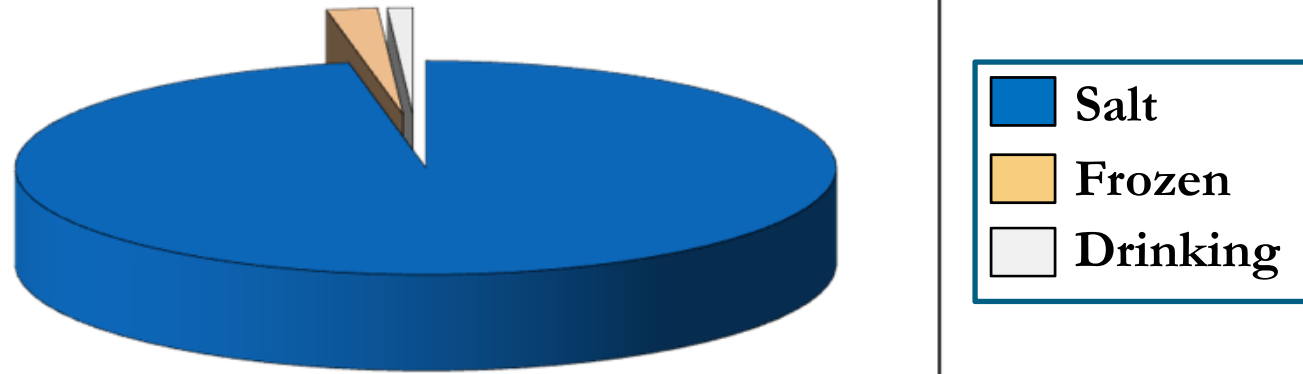
Today's Agenda

- Watershed 101
- What are Green Streets?
- Why Green Streets?
- Green Street Locations
- Green Streets Practices
- Your Green Streets Project!



Watershed 101

- Sources of Water

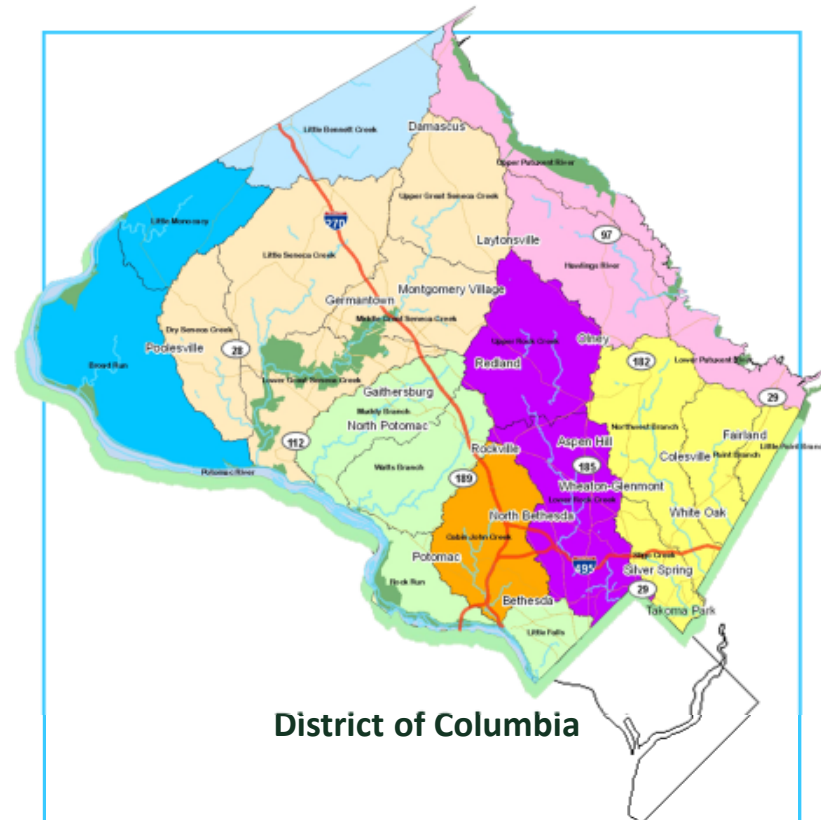


- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
 - Across the Country, about 57% comes from groundwater sources
 - In Maryland, 74% is from surface water sources
- Potential for greater impacts from runoff in Maryland

Watershed 101

- **Montgomery County, MD**

- 507 sq. miles
- About 12% impervious surface overall
 - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
 - Potomac
 - Patuxent
- Eight local *watersheds*



- **Impervious:** Not allowing water to soak through the ground.

Watershed 101

- What is a Watershed?

- A ***watershed*** is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
 - Chesapeake Bay
 - Eight local watersheds
 - Neighborhood (to a storm drain)

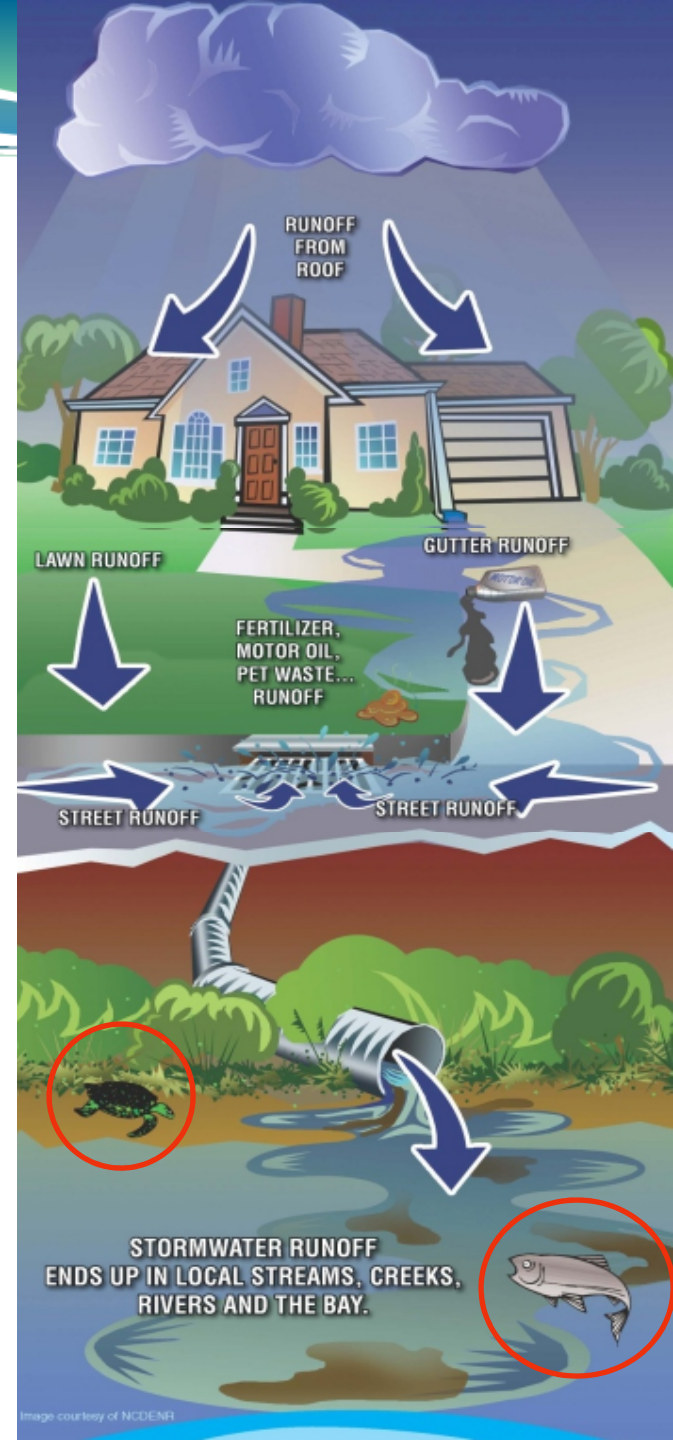


Watershed 101

- **What is Runoff?**

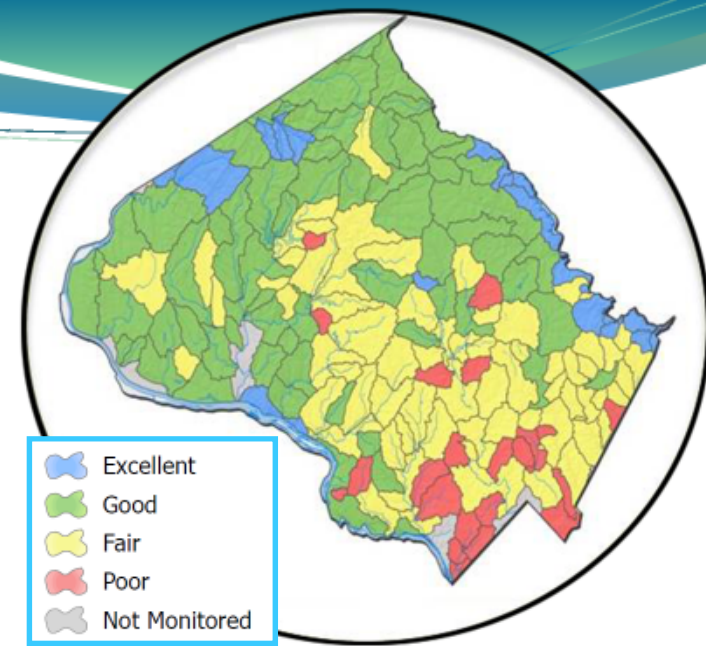
- Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:
 - Directly into streams
 - Into storm drain pipes, eventually leading to streams
 - Into stormwater management facilities, then streams

Two Major Issues:
Volume/Timing of Runoff
Water Quality



Watershed 101

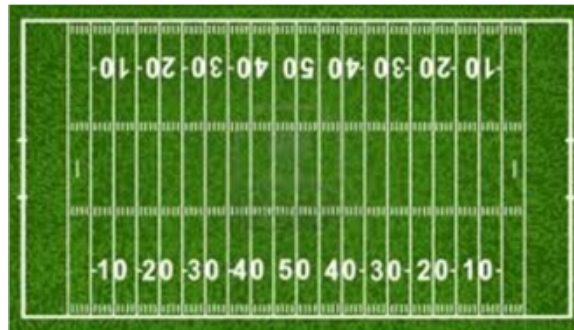
- What is the County doing to protect our Streams?
- Must meet regulatory requirements
 - Federal Clean Water Act permit program
 - MS4 = Municipal Separate Storm Sewer System
- County Programs
 - Restore our streams and watersheds
 - Meet water quality protection goals
 - Educate and engage all stakeholders
 - Focus on watersheds showing greatest impacts



What is the County Doing to Protect our Streams?

- DEP is adding stormwater management for 20 % of impervious surfaces
(4,292 acres = 6.7 square miles)... About three times the size of Takoma Park.

That's equivalent to 3,307 football fields!



What are Green Streets?

- Small scale stormwater practices located within street right of way areas.
- Approx. 1/3 of impervious surfaces in our County are roadways.



BIOSWALE



**RAIN GARDEN/
BIORETENTION
(NEWLY PLANTED)**



TREE BOX



**PERVIOUS
PARKING &
WALKING PATHS**

Why Green Streets?

- Replenish groundwater and improve flow in local streams
- Water can soak into the ground while plants and soils filter pollutants



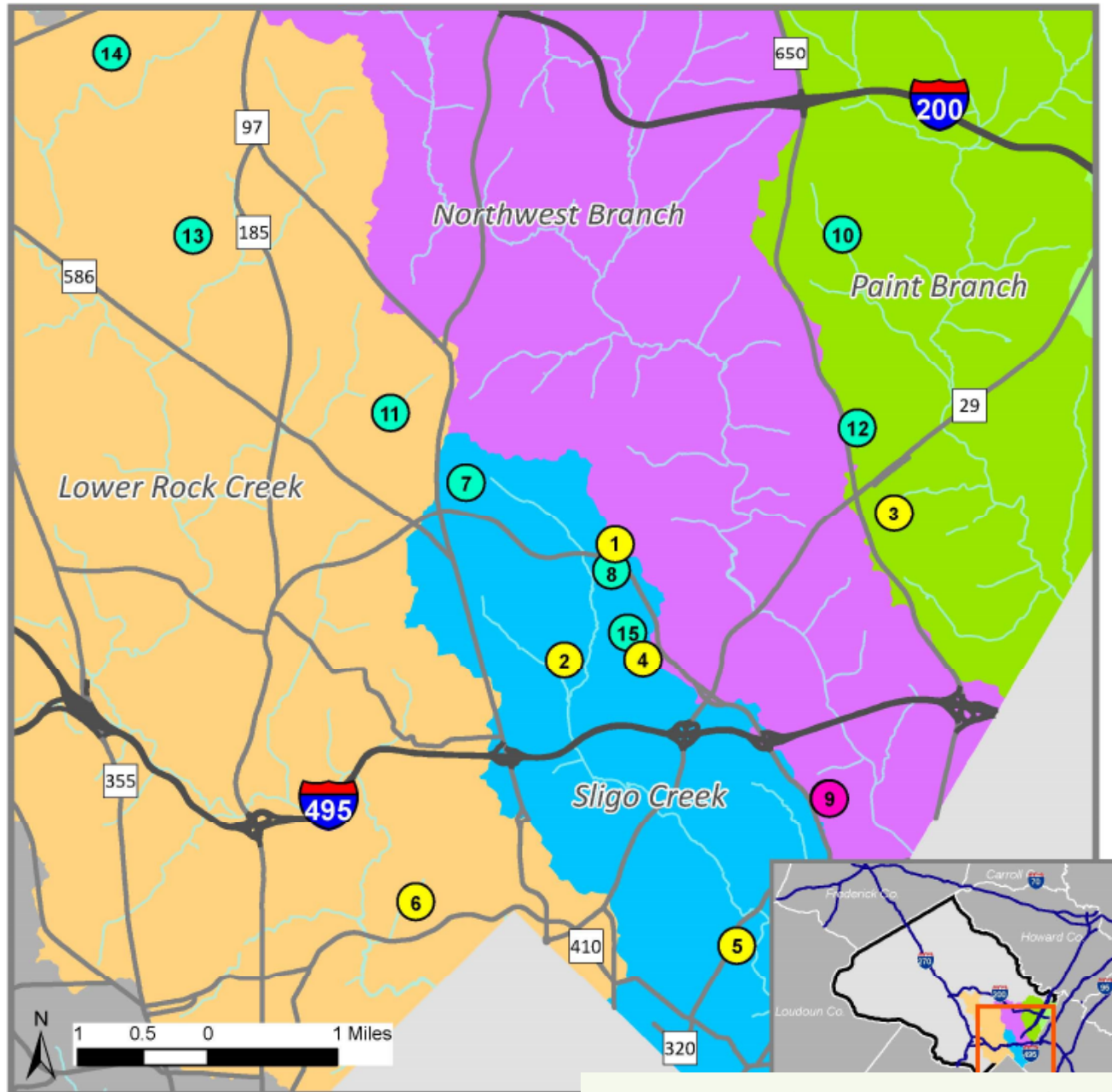
- Create aesthetically attractive streetscapes



- Provide natural habitat



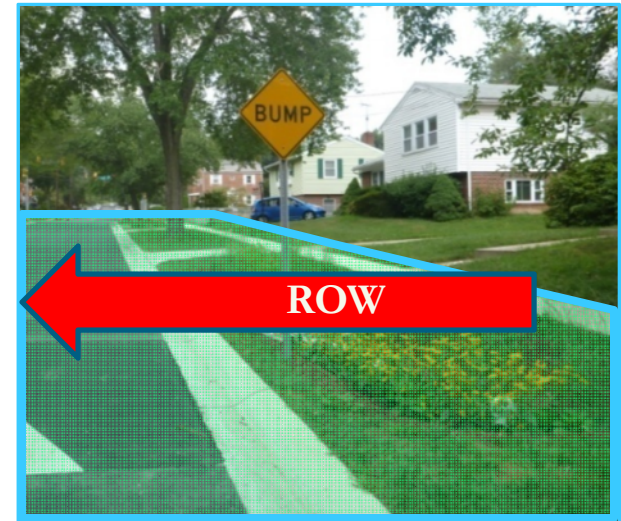
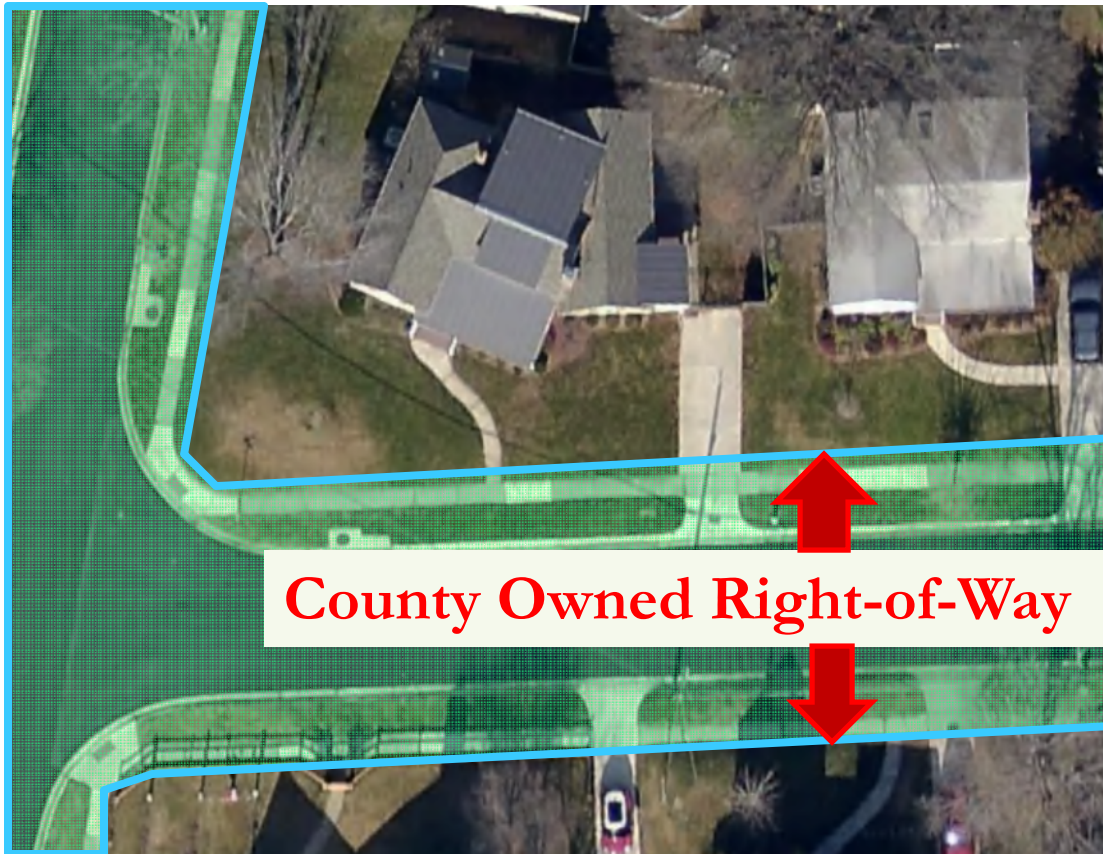
Montgomery County **Green Streets** (March 2015)



	COMPLETE
1	Arcola Avenue
2	Forest Estates
3	White Oak
4	Dennis Avenue
5	Sligo Park Hills
	IN CONSTRUCTION
6	Donnybrook
7	Amherst
8	Breewood
9	Franklin Knolls and Clifton Park
	IN DESIGN
10	Cannon Road
11	Glenmont Forest
12	Springbrook \ Homestead Estate
13	Wheaton Woods
14	Manor Woods
15	McDonald Knolls \ Ballantrae \ Sligo Estates

Where will Green Streets be?

- Selected areas within the County Right-of-Way (ROW)



With Sidewalk



Without Sidewalk

Green Streets Practices

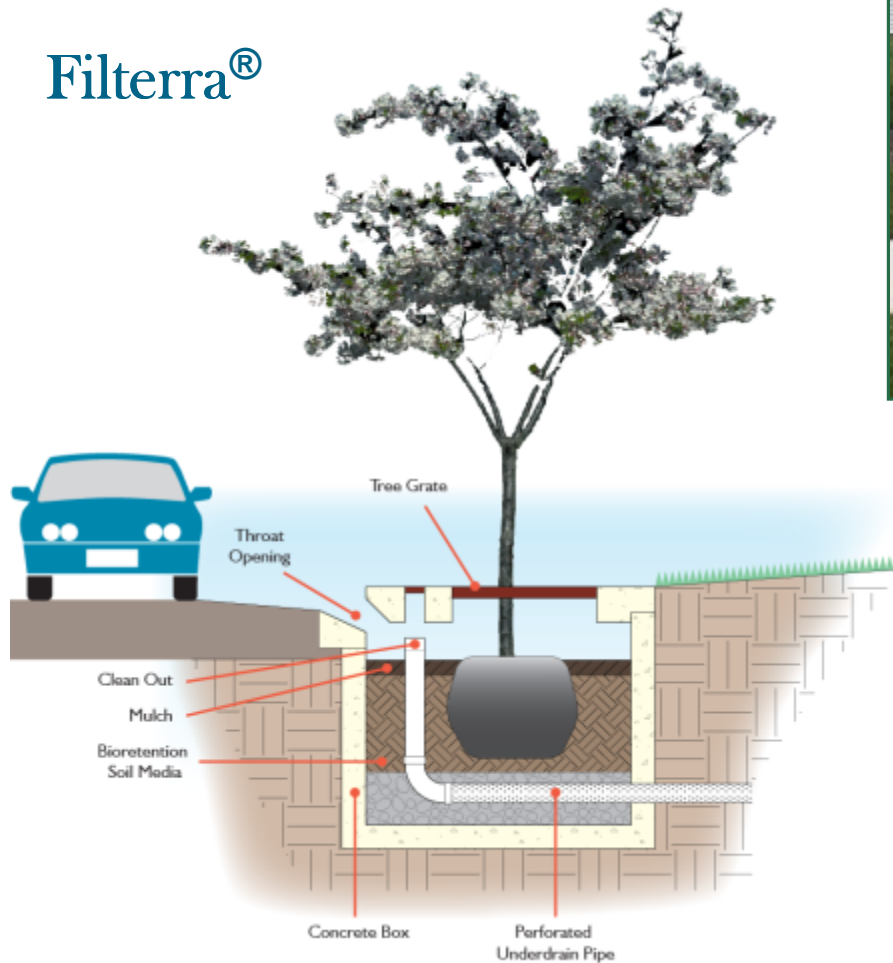
- Bioswale



Green Streets Practices

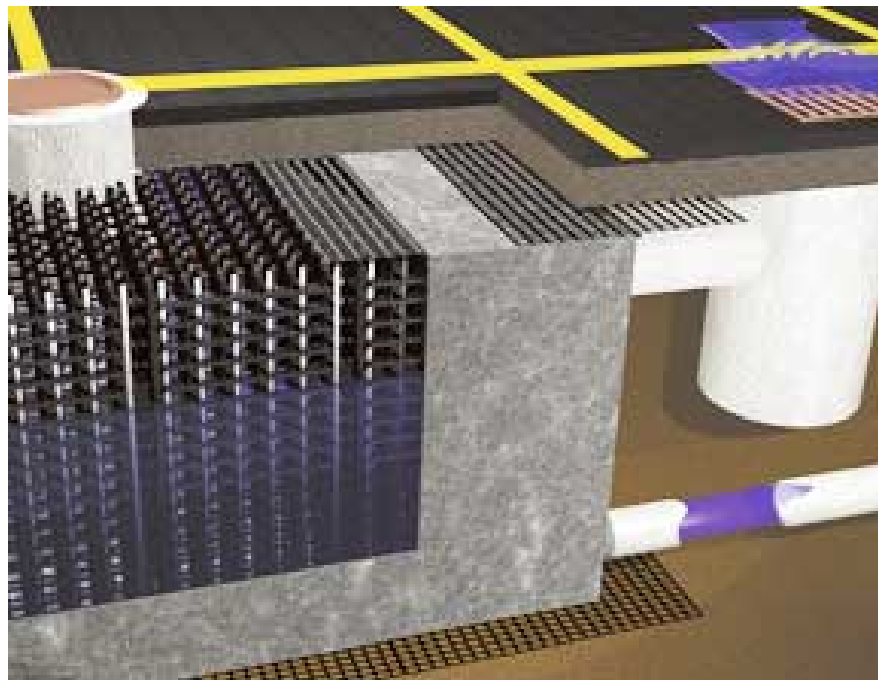
- Tree Box Filter

Filterra®



Green Streets Practices

- Small Scale Underground Stormwater Practices
 - Infiltration structure in curb inlet
 - Rainstore[®] Infiltration



Source: <http://invisiblestructures.com/rainstore3.html>

Green Streets in Sligo Estates /Ballantrae /McDonald Knolls

Project Location



SLIGO ESTATES /BALLANTRAE /MCDONALD KNOLLS PROJECT

Overview Map



Site Area Boundary



Project Location Within Montgomery County



Green Streets in Sligo Estates /Ballantrae /McDonald Knolls

Neighborhood Background

- Developed in 1950s
- Single family residences
- No stormwater treatment
- Stormwater drains to Sligo Creek



Green Streets in Sligo Estates /Ballantrae /McDonald Knolls

Constraints & Proposed Practices

Constraints that we Consider:

- Driveways
- Trees
- Utilities
- Parking demand
- Slope
- Soils

Proposed Practices:

- **132 total practices proposed within the right of way**
- **41% total impervious area treated**

Green Streets in Sligo Estates /Ballantrae /McDonald Knolls



SLIGO ESTATES /BALLANTRAE/ MCDONALD KNOLLS PROJECT PRELIMINARY DESIGN - LOCATION MAP 1



SWM FACILITY LEGEND

- SITE BOUNDARY
- BIOSWALE
- TREE BOX FILTER
- UNDERGROUND STORAGE

100' 0 100' 200'
SCALE: 1"=100'



Green Streets in Sligo Estates /Ballantrae /McDonald Knolls



SLIGO ESTATES /BALLANTRAE/ MCDONALD KNOLLS PROJECT

PRELIMINARY DESIGN - LOCATION MAP 2



SWM FACILITY LEGEND

- SITE BOUNDARY
- BIOSWALE
- TREE BOX FILTER
- UNDERGROUND STORAGE

100' 0 100' 200'
SCALE: 1"=100'



Green Streets in Sligo Estates /Ballantrae /McDonald Knolls



SLIGO ESTATES /BALLANTRAE/ MCDONALD KNOLLS PROJECT PRELIMINARY DESIGN - LOCATION MAP 3



SWM FACILITY LEGEND

- SITE BOUNDARY
- BIOSWALE
- TREE BOX FILTER
- UNDERGROUND STORAGE

100' 0 100' 200'
SCALE: 1"=100'



Green Streets in Sligo Estates /Ballantrae /McDonald Knolls

Public Events and Project Schedule (Tentative)

Event	Date / Time	Location
Preliminary Site Assessment	February 18, 2014	
Public Meeting	November 18, 2015	Forest Knolls Elementary School
Draft Designs	Spring 2016	
Community Walk	Summer 2016	Neighborhood
Final Designs	Winter 2016	
Construction Duration	~5 days/ practice	Entire Project

We are
here →

Community Involvement

- Public Meeting
- Community Walk
- Other meetings, as needed



Maintenance

- MCDEP will visit monthly (on average)
- We will:
 - Water plants, if needed
 - Replace plants as needed
 - Replenish mulch
 - Remove weeds
 - Remove sediment & trash



Questions?

■ For More Information:

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Projects Webpage:

<http://www.montgomerycountymd.gov/DEP/Restoration/sligo-ballantrae-mcdonald-knolls.html>

